



Pathways to Technology
CONNECTING FIRST NATIONS TO THE WORLD

Current status of Broadband Connectivity in First Nations Communities in B.C.

Presented to National Indigenous
Economic Development Board
March 2021

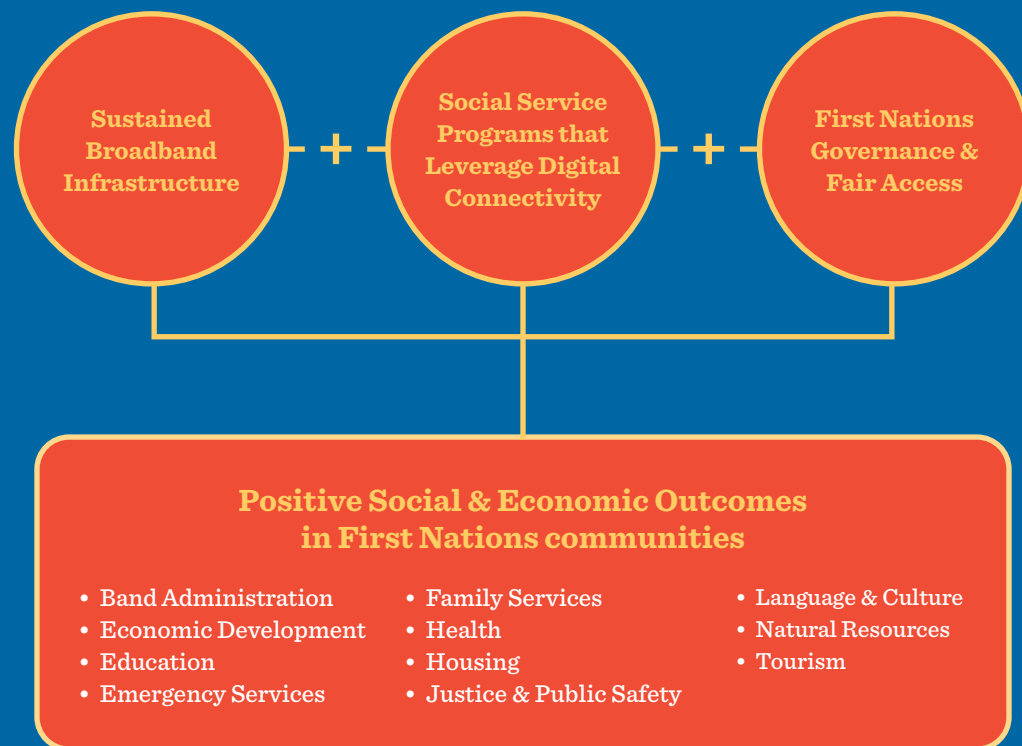
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The question isn't 'can we afford to connect our First Nations Communities?'

It's 'how can we afford not to connect them?'

Sustained Broadband infrastructure will enable B.C.'s First Nations Communities to leverage digital social service programs, leading to positive outcomes across every socio-economic area. This is even more critical in remote communities where non-digital social service programs are limited.

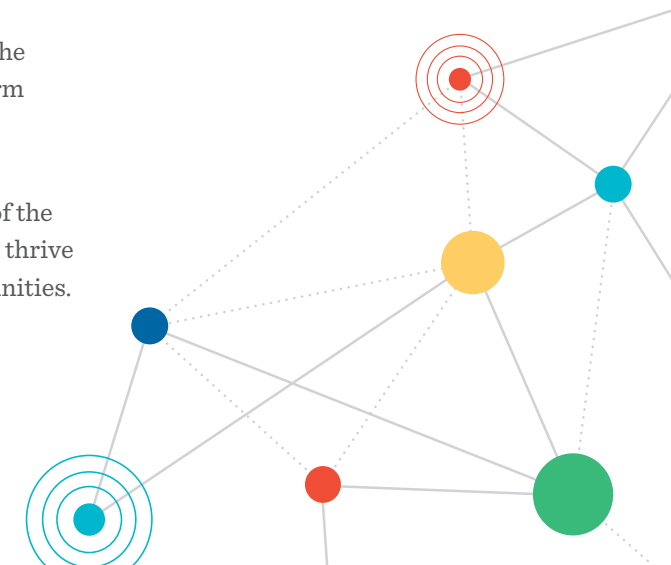


An urgent need brought into sharp focus by a pandemic

We have seen over the past year, the hardship that is being visited upon communities that lack adequate connectivity, including the stress of not having access to timely information and not being able to functionally receive virtual services such as remote healthcare and remote education where the higher broadband speeds are required.

Affordability to access the high-speed broadband internet, such as the new CRTC 50/10Mbps standard, that the urban areas enjoy as a norm is still a very challenging issue in the remote communities.

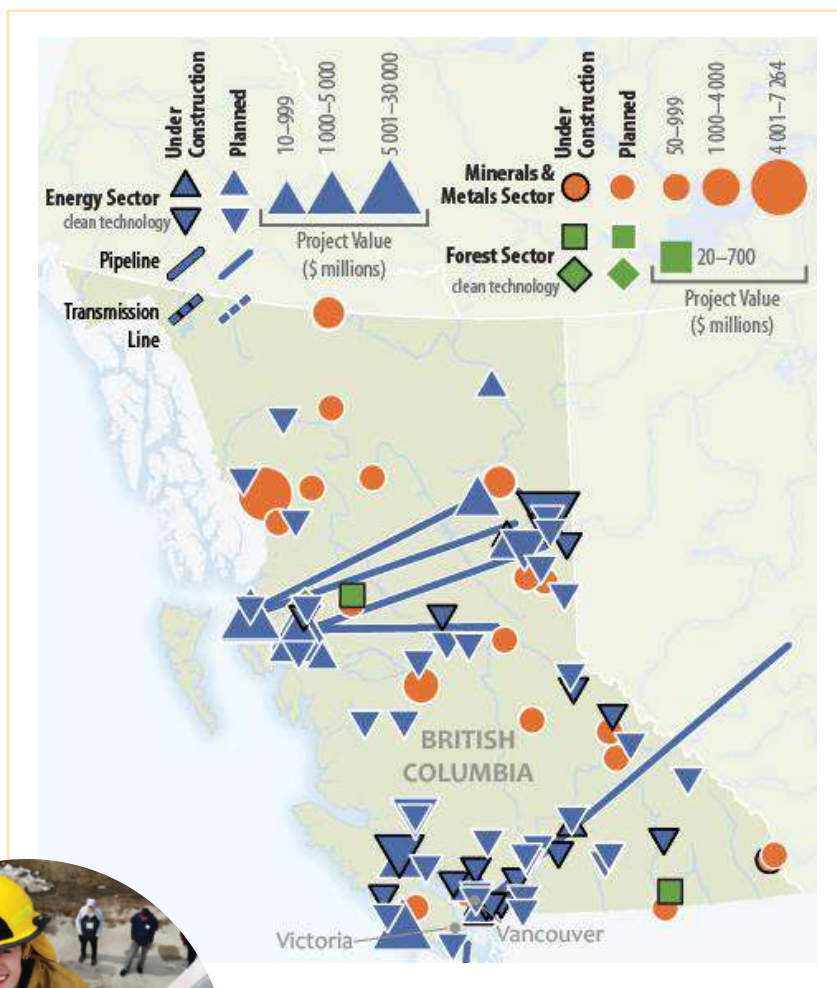
Urgent review and considerations for solutions such as aggregated broadband affordability assistance are required, especially in light of the pandemic and the crucial reliance on virtual services to survive and thrive across the socio-economic development spectrum for these communities.



Critical to First Nations participation in the economic development

The new CRTC Broadband Internet Standard is foundational enabler for First Nations to educate, train, participate and lead in the economic development and major projects initiatives in the region, especially in light of the pandemic.

- › A total of 109 projects are under construction or planned over the next 10 years in British Columbia, representing \$206 billion in investment.
- › Energy projects account for more than 90% of the value of major project investment in the province.
- › In 2018, there were 55 clean technology projects included in the B.C. inventory, valued at \$27 billion. These included:
 - 32 hydro projects valued at \$19 billion
 - 10 wind projects valued at \$4.3 billion
 - 12 biomass/biofuels projects valued at \$3.4 billion
 - 1 geothermal project valued at \$30 million



B.C.'s First Nations Population

In B.C., in 2016 there were 270,580 Indigenous people

- › 16% of Canadian Indigenous people
- › 5.9% of British Columbia's population

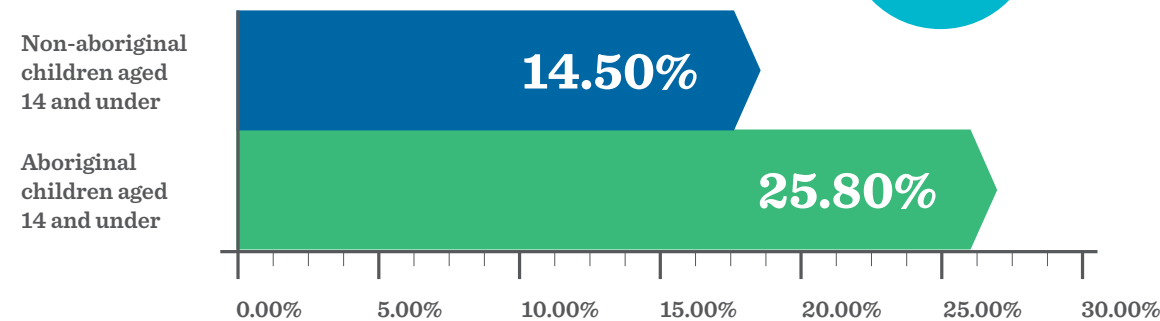
In general, the Aboriginal population is younger than the non-Aboriginal population.

Aboriginal children aged 14 and under represented 25.8% of the total Aboriginal population, while non-Aboriginal children aged 14 and under accounted for 14.5% of the non-Aboriginal population.

The average age of the Aboriginal population in British Columbia was 32.8 years, compared with 42.4 years for the non-Aboriginal population. (9.6 years younger)



9.6 years younger
Average Age of B.C.'s Indigenous population compared to the non-Aboriginal population



Indigenous people are more likely to live in rural B.C. than non-Indigenous people:

- › Two-thirds of Indigenous people live outside of the mainland/southwest region compared to only 37% of non-Indigenous people. (66% vs. 37%)

37%
Non-Indigenous people who live in rural B.C.

66%
Indigenous people who live in Rural B.C.

B.C.'s 27 Tribal Areas



27
Number of Tribal Areas

510
Total number of inhabited First Nations Communities

203
Number of First Nations

307
Number of First Nations Secondary Communities that are inhabited with homes in addition to the Primary "Seat of the Government" First Nations Communities

19,042
Number of Homes in the First Nations Communities

16,346
Number of Homes in the Primary Communities

2,696
Number of Homes in the Secondary Communities

Homes by First Nation and Tribal Area in B.C.

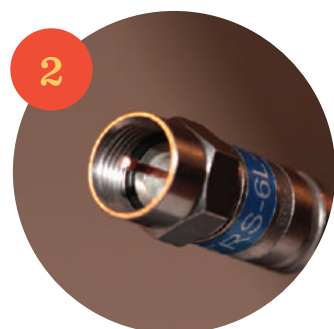
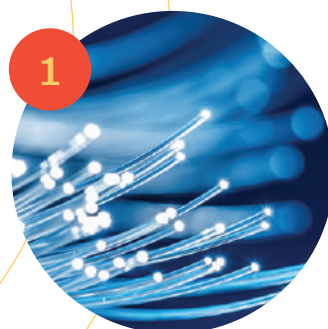


	B.C. Tribal Areas	First Nations	Homes
1	Nuu-chah-nulth	14	858
2	Kwakwaka'wakw	15	976
3	dii?diitidq	3	110
4	hul'q'umi'num'	38	3,460
5	sen'coten-malchosen-lekwungen-semiahmoo-t'sou-ke	16	2,192
6	Nlaka'pamux	15	726
7	Okanagan	7	1036
8	Ktunaxa, Kinbasket	4	181
9	Secwepemc	16	1683
10	Stl'atl'imx	11	736
11	Tsilhqot'in	7	515
12	Oweekeno	1	48
13	Dakelhne (Carrier)	12	912
14	Nuxalk	1	355
15	Heiltsuk	2	440
16	Haida	2	605
17	Tsimshian	7	890
18	Haisla	1	190
19	Wet'suwet'en	6	590
20	Gitxsan	6	978
21	Sekani	3	173
22	Dunne-za	6	386
23	Nisga'a	4	592
24	Dene-thah	1	155
25	Kaska, Dena	1	25
26	Tahltan	3	190
27	Tlingit	1	40
	Totals	203	19,042

Not all connections are created equal

Many broadband technologies commonly used in remote areas cannot support the CRTC 50/10Mbps standard.

	Technology	Name Associations	Supports CRTC 50/10Mbps
1	Fibre Optic Cable	Fibre, Sub-Sea Cable	Yes
2	Coax Cable	Cable, Copper	Yes
3	Microwave	LOS Microwave, Air Fibre, Wireless Shot	Yes
4	Non-Cellular Wireless	WiFi, WiMAX	No
5	Cellular	Cell, "Smarthub", LTE, 5G, Microcell	No
6	Satellite	Satellite Dish, Low Earth Orbit (LEO) Satellite	No



With inherent aptitude and newly acquired skills in place, Indigenous communities are increasingly well-positioned to realize the tangible benefits of high-speed internet connectivity.

Current Connectivity Status

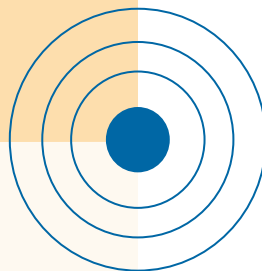
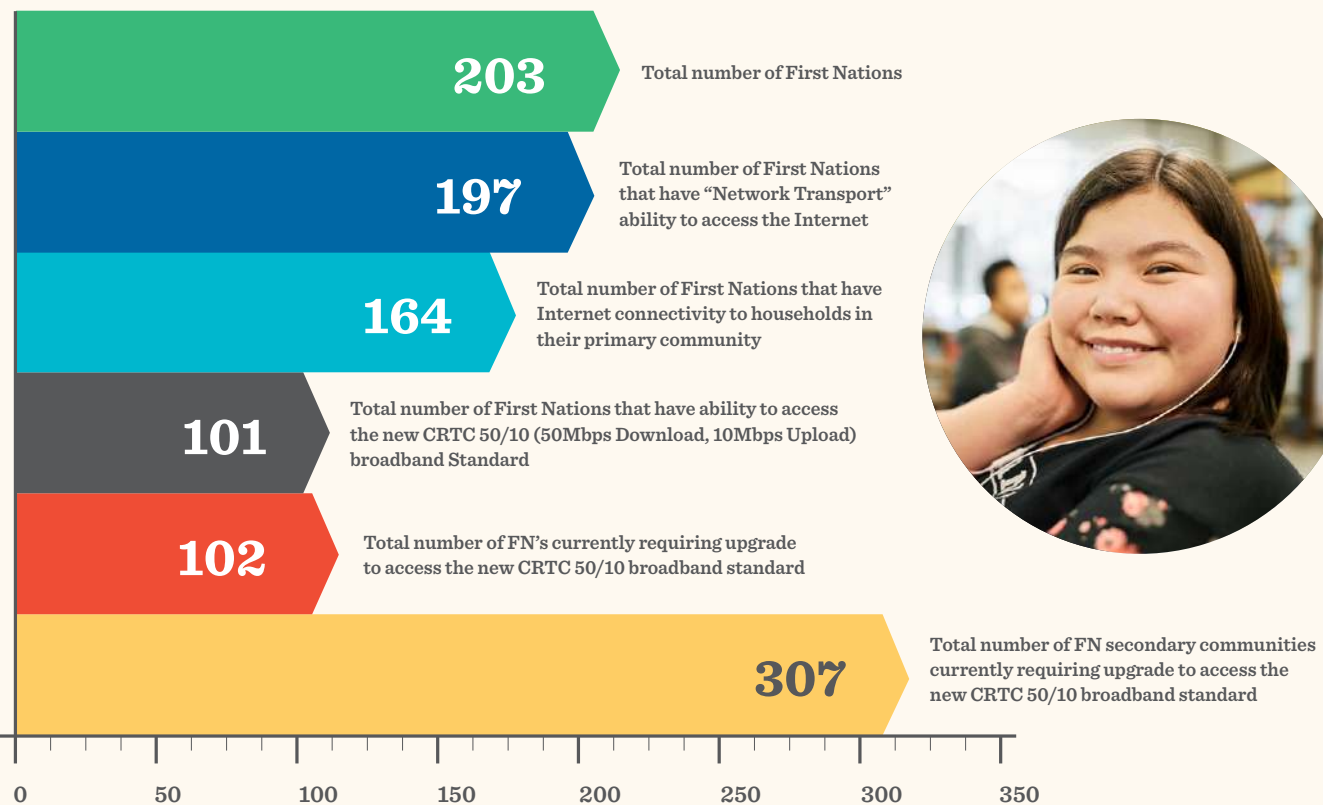
Pathways to Technology is extending the web of reliable, high-speed Internet connectivity to all 203 First Nations in B.C.. And we're crossing some of the most remote and rugged terrains in the world to do it. The chart below summarizes the current status of connectivity in our communities based on the data we have collected to date. While there has been tremendous progress, the moving goalposts for "minimum standards" set by the CRTC show work still needs to be done. While some of this is an infrastructure issue, more importantly, many communities are unable to support the networks for these "standards" from an operational perspective.

Network Transport Capability

is where the necessary network infrastructure such as fiberoptic connections have been laid along the highway close to the community.

Last Mile Capability

is where every household and structure in the community is connected to broadband.



Successes to Date

Progress is being made, but the work of closing B.C.'s digital divide is far from finished.

Pathways to Technology Numbers:

- › 92 First Nations Communities with Transport at an average cost of \$452,925 for a total of \$41,659,155
- › 88 First Nations Communities with Last Mile at an average cost of \$141,361 with the total cost \$12,439,785

Connecting Socio-Economic Infrastructure Locations:

- › 58 Health Centres
- › 49 Schools
- › 92 Band Administration Offices
- › Over 150 socio-economic locations from Community Halls, Day Care Centres to Water Treatment Plants

Regional Build Highlights (2018-2019)

B.C. Highway 4 across Vancouver Island

- › Collaboration with municipal, provincial and federal governments to bring Broadband Internet connectivity across the island while connecting 9 First Nations
- › Enabling over 20 Indigenous Businesses focusing on Tourism and resource development with digital connectivity
- › Enabling improved emergency management and communications from Tsunamis to Flood Management

B.C. Highway 20 across Cariboo Chilcotin Territory

- › Bring Broadband Internet to 13 First Nations from interior B.C. to the Coast in central B.C.

- › Enabling Telehealth deployment by First Nations Health Authority to the remote First Nations communities
- › Enabling improved emergency management and communication for the Forest Fire territory

Regional Build Highlights (Planned)

B.C. Highway 16 - Carrier Sekani Territory

- › Enable improved safety and security of the First Nations citizens along the "Highway of Tears"
- › Collaboration with the Universal Broadband Fund, provincial and federal governments to bring the new CRTC Broadband Standard to 9 First Nations
- › Enable remote health and pandemic management of Carrier Sekani Family Services and First Nations Health Authority with connected technologies
- › Bring Broadband Internet to the 3 remote First Nations communities south of Francois Lake with access only through a ferry

Trans Canada Highway 1 - Fraser Canyon corridor

- › Bring the new CRTC Broadband Internet Standard to 16 First Nations along the remote and challenging terrain of the Fraser Canyon
- › Enabling remote education programs delivered through connected digital technologies from First Nations Education Steering Committee
- › Enabling improved indigenous social and environmental services from Water Treatment and Waste Management to Clean Energy industry businesses



First Nations Socio-Economic Data and Broadband Connectivity

Education:

130 total Schools in the First Nations:

- › 105 with FNEC (TEFA)
- › 25 non-TEFA and Adult Learning Centres

All 130 Schools are connected with Internet:

- › 91 (70%) schools are capable of receiving the 10/50 Broadband Standard throughput
 - 67 have Fibre connectivity
 - 24 have Cable connectivity (such as Coaxial)
- › 39 (30%) schools require upgrades to their connectivity to receive the 10/50 Broadband Standard throughput
 - 16 have Wireless connectivity
 - 22 have ADSL connectivity
 - 1 has Cellular based connectivity

With the COVID-19 Pandemic combined with a young indigenous population comprising of 25.8% of the indigenous people who are 14 and under. The access to the Internet of the new CRTC standard to receive remote education is becoming paramount.



First Nations are leveraging Broadband Internet connectivity to deliver online programs in B.C. such as Connected Classrooms.

Connected Classrooms is a highly supportive online learning approach, currently focusing on higher level math, science, and English First Peoples courses for grade 10-12 students.

22 Connected Classrooms sites are now operational, jointly offering courses using innovative information and communications technologies.

The initiative was created to address the circumstances of many First Nation high schools that are small and remote, which creates difficulties offering a variety of courses and attracting specialized secondary teachers, often associated with small cohorts of students for specific courses that will lead to graduation and access to a range of post-secondary options. Connected Classrooms allows First Nation students to stay in their community schools to complete all courses required for high school education, which many students and families find particularly supportive, fostering greater success.

Participating schools use a combination of technologies, including real time video conferencing, to connect and create an interactive classroom environment for students located in a collective of First Nations schools throughout B.C.. This project differs from other Distance Learning initiatives as the students participate in a real time virtual classroom with an instructor qualified to teach the subject, complemented with in-person support from an on-site educator. Students have attributed their success in Connected Classrooms courses to their ability to see and interact with the remote and on-site teacher, as well as other students.



Healthcare

In British Columbia, First Nations Health Authority has been leading the deployment and adoption of eHealth programs and initiatives that leverage a robust Broadband Internet to deliver online Virtual Health Care to the First Nations Citizens.

- › Total number of Health Centres and Nursing Stations in the First Nations Communities: **162**
- › Total number of Health Centres requiring upgrade to the new CRTC Broadband Standard: **83**
- › Total number of Telehealth Encounters per year: **12,000**
- › Number of use instances of the Electronic Medical Record and Electronic Health Record in the First Nations per year: **60,000**

Emerging Innovative Virtual Health Care Services lead by FNHA in the time of the pandemic that are dependent on having a robust Broadband Internet connectivity in the First Nations Homes.

First Nations Virtual Doctor of the Day

- › Number of virtual encounters between First Nations citizens from their homes in their communities to Physicians per month: **600**
- › Number of Physicians: **40**
- › Number of Indigenous Physicians: **12**

First Nations Virtual Substance Use and Psychiatry

- › Number of Virtual Substance Use and Psychiatry encounters per month: **160**
- › Number of Physicians and Clinicians: **17**
- › Number of Indigenous Physicians and Clinicians: **6**



Other Socio-Economic Areas where the new CRTC Broadband Internet standard is a required foundation to enable and enhance services in the remote First Nations Communities and Lands

Social Housing:

- › Number of active First Nations social housing projects in B.C.: **42**
- › Number of additional Indigenous Social Housing units on and off reserve to be built in B.C. over the next 10 years: **1,750**

Emergency Management:

- › Types of Major Hazards and Emergencies in B.C. (From Forest Fires to Avalanches): **49**
- › Number of Emergency Incidents in First Nations per year: **800**
- › Number of First Nations with Emergency Preparedness Level 0 or 1: **152**
- › Number of Emergency Management Programs delivered in the First Nations Communities by First Nations Emergency Services Society per year: **60**
- › Number of First Nations requiring 911 Emergency Response services to be implemented: **192**

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Justice and Policing:

- › Percentage of Indigenous Adults to all Adults in custody admissions in B.C., 2018: **32%**
- › Percentage of Indigenous Youth to all Youths in custody admissions in B.C., 2018: **43%**
- › Number of Virtual Justice proceedings and encounters in Indigenous Communities per year: **200**
- › Number of RCMP detachments in remote First Nations Communities in B.C.: **16**

Environmental Monitoring and Management:

- › Number of active First Nations led Environmental Monitoring and Management programs in B.C.: **120**
- › Number of Indigenous CleanTech initiatives in B.C.: **18**

First Nations Language and Culture:

- › Number of Language Apps and online learning systems in B.C.: **16**
- › Number of Digital initiatives to preserve, learn and promote activity on First Nations Languages and Culture: **38**
- › Number of Arts projects led by First Peoples Cultural Council in B.C., 2020: **150**
- › Number of Virtual Language Revitalization events led by First Peoples Cultural Council in B.C., 2020: **29**

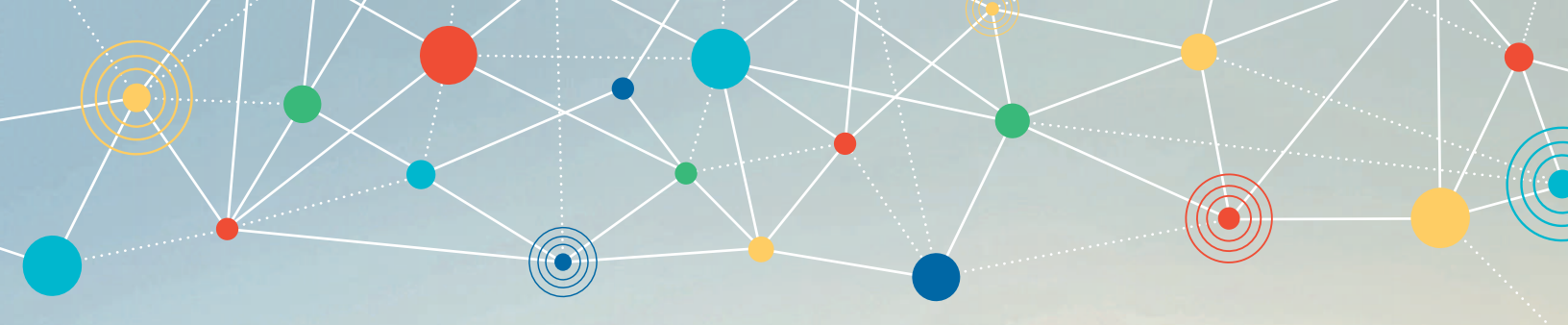
Tourism:

- › Revenue from Tourism in First Nations in B.C. per year: **\$80 Million**
- › Revenue from Tourism in B.C. per year: **\$20.5 Billion**
- › Number of Tourism related businesses in B.C.: **19,000**
- › Number of Indigenous Tourism Businesses in B.C.: **92**
- › Number of Indigenous Tourism Businesses requiring the new CRTC Broadband Internet connectivity: **78**

Indigenous Jobs and Businesses:

- › Unemployment rate in First Nations in B.C.: **15.4%**
- › Unemployment rate in Non-First Nations in B.C.: **9.5%**
- › Number of Indigenous Businesses in B.C.: **1,235**
- › Number of Indigenous Businesses requiring the new CRTC Broadband Internet connectivity standard: **1,030**
- › Number of Natural Resource Major Projects planned for Next 10 years in B.C.: **109**
- › Number of investments for the Major Projects: **\$206 Billion**
- › Number of Major Projects linked to First Nations by agreements: **19**





A Special Thank You

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